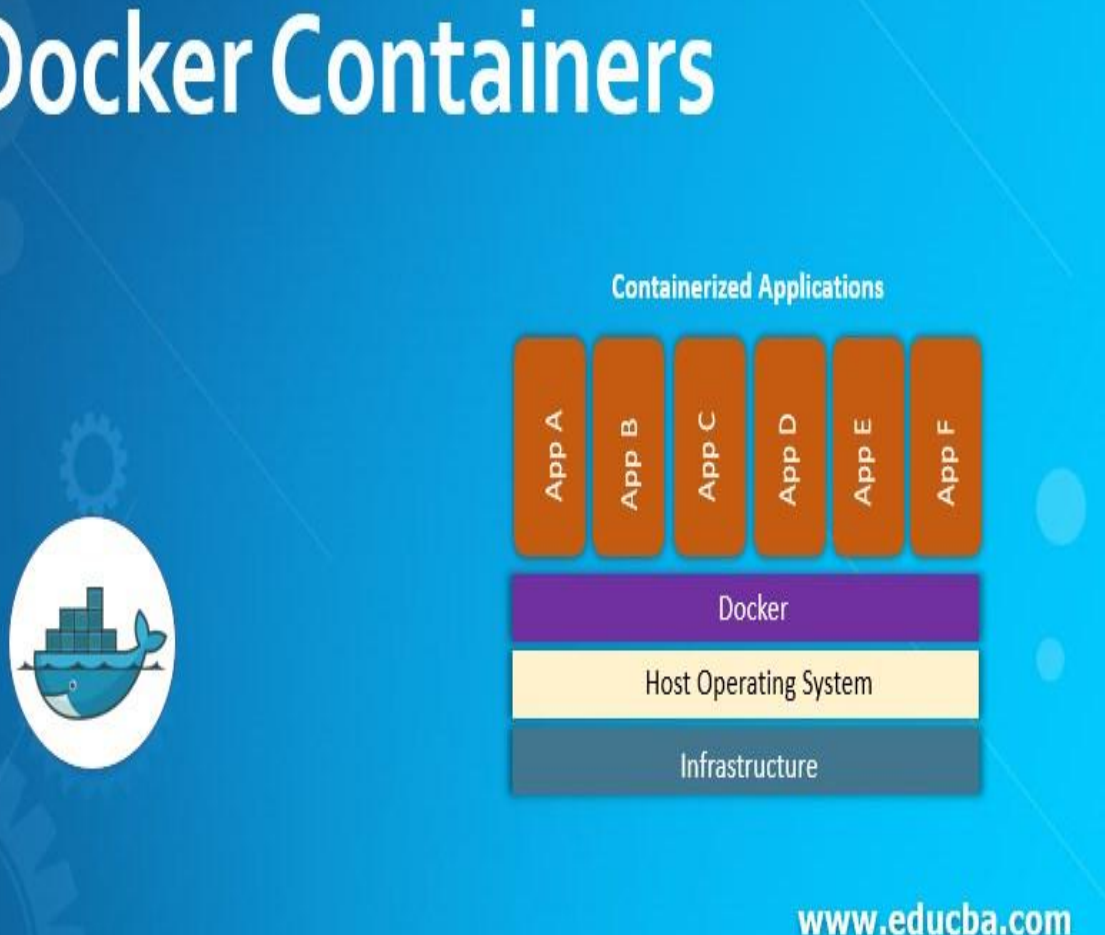
docker

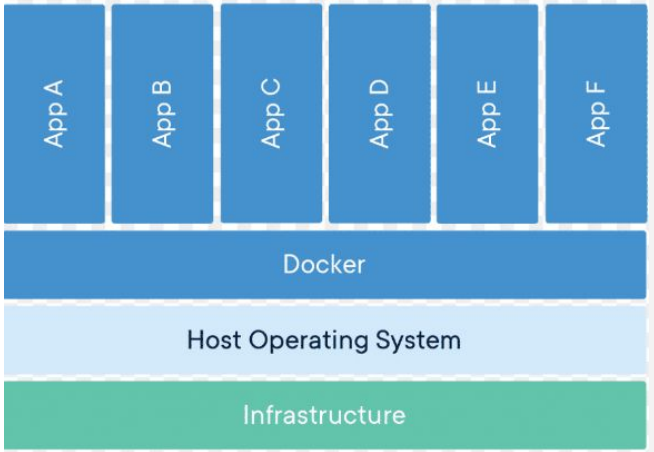
Introduction:

- Docker is a open-source containerization platform that is used to build, deploy and manage application container on common OS.
- Docker is basically using OS-level virtualization.
- Docker containers are build from docker images.



Features of Docker:

All of the container share same OS on the basis of their requirement.



Docker is called lightweight since the container consists of OS but very small in size as compared to RAM size allocated. For eg: RAM size is 4Gb and OS size will be just about 60Mb.

Docker also allows us to have shared containers.

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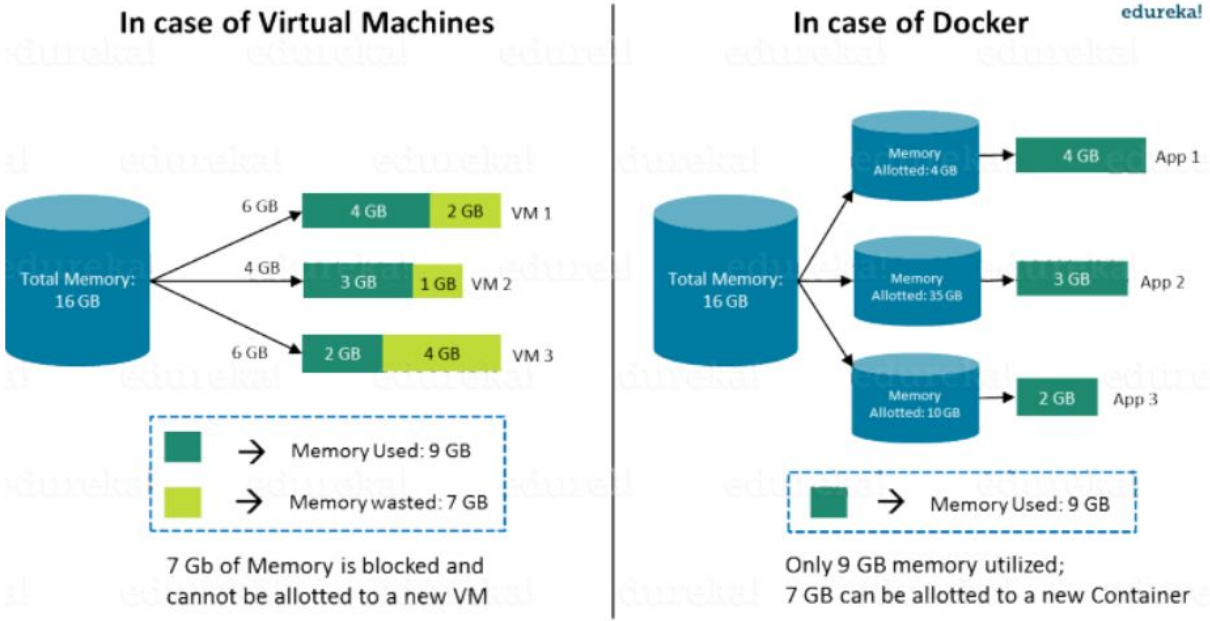
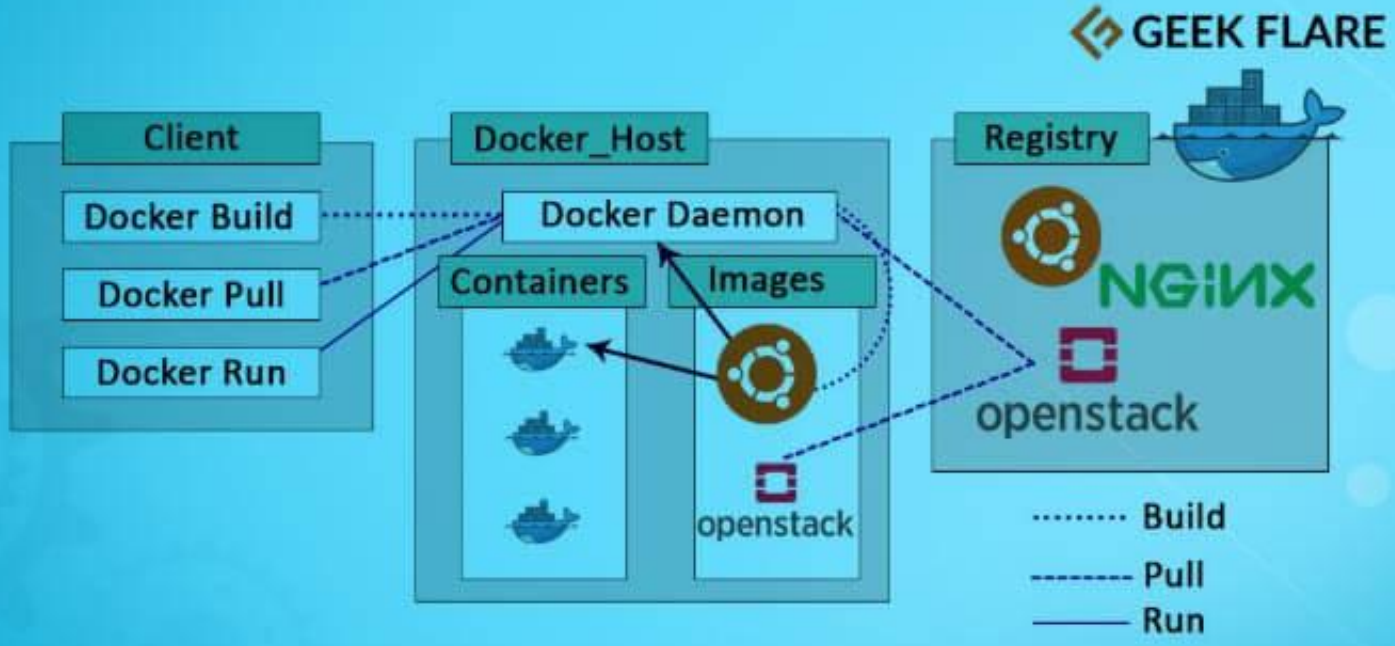


Container have flexibility to allocate the RAM size as per their need.

What can we use Docker for?

1. Fast, consistent delivery of application.
2. Its container-based platform allows for highly portable workloads. Containers can run on a developer's local laptop, on VM in data center, on cloud providers, or in a mixture of environment.
3. We can use docker for high density environments and for small deployments where we need to do more with few resources, i.e. running more workloads on the same hardware.

Docker Architecture



Description of architecture:

1. Docker uses a client-server architecture.
2. Docker client talks to docker daemon(Engine). Docker daemon build, run, and distributes containers.
3. We can use client and daemon on same system or they communicate using REST API.
4. Docker registry is a storage to store the images. Docker hub is the public registry that can be used by anyone.
5. Image is a read-only template with instruction for creating container.
6. Container is a runnable instance of an image.

1. docker images

- This command is used to show whether our docker contains any image or not.

2. docker search image_name

- This command is used to search for the available images.

3. docker pull img_nam

- This command is used to pull image from the docker registry(i.e. docker hub).

4. docker run image_name

- This command is used build the image and run the container.
- If we use:
  docker run -it img_name
  Then we can have shell access to container.

5. docker ps

- This command is used to show whether there is any running container or not.

- If -a is attached to the command then it shows all the containers.

6. docker start conta_id

- This command starts the stopped container.
- Similarly use stop top halt the running container.

7. docker commit -m “content” -a “author_name” conta_id user_name

- -m switch is for the commit message and -a is used to specify authors.
- When we commit an image, the new image created from existing image is saved locally on your computer.

8. Steps for pushing images into the docker hub

1. Login into docker hub

Command:

docker login -u user_name

2. Tag the image referenced by using name or ID to the repository.

Command:

docker tag img_nam/img_tag usr_nm/repository_nm:tag_name

3. Finally push the image to the repository.

Command:

docker push usr_nam/repo_nm

9. docker rename conta_id new_name

- This command is used to rename the docker.